formation of CO, because C02 can only be produced in considerable quantities at reaction temperatures under 1,000°.

One can most simply solve the question if one calculates the theoretical composition of the steam-air gas, which would result if carbon were wholly converted into the form of C02. That this is not practically attainable need not further deter one, as the result will only serve to point out the influence of the formation of C02 in complete purity. It is also not practicable to manufacture gas with formation of pure CO. However, the values obtained represent the extreinest limits between which the results must lie, which arise from the simultaneous formation of C02 and CO.

From Table A (Naumann and Ernst) the maximum formation of 002 with air occurs at about 700° C., and let it be assumed that at this temperature steam is decomposed into H and 0, and that the 0 set free combines with carbon, forming OOij. According to the method of continual approximation, it will bo found that 6*66 cubic metres of gas will be furnished from 1 kilogramme C, and that thus the quantity of heat that tho requisite C brings into the reaction zone amounts to 28 calories according to the assumption as to the production of 1 cubic metre gas.

Tho amount of heat which this gas must take up at the moment of its origin will be given by the expression

Q=c$, wherein £=700°.

For CJ the specific heat of the so-called "fixed" gases 00, H, N, 0 can no longer be taken, as C02 is present in larger measure. By the method of approximation one ascertains that about 28 per cent. C02 would be present, and thereby one obtains 0'3983 for the mean specific heat of the gas at 700°. Thus

Q=0'8988x 700=279 calories per cubic metre gas.

Bopreaenting then the content of C02 in this by x, of H by ?/, and of N by z, whence x+y+z=l, then, as 1 cubic metre gas will be taken into consideration, one can ascertain Q in like manner to that given on p. 49, it is, viz., equal to the sensible